

REMARKS

By the subject amendment, Applicants have amended the Specification and Claims 15 to 17, 20, 26 and 27 to 31 to correct obvious typographical errors without altering the scope of the claims. Further, Applicants have added Claims 32 through 35. Accordingly, Claims 1 through 35 are presently pending herein. Claims 1, 25, 26, 29, 31 and 32 are presented in independent form.

Applicants note that Claims 29 and 31 have been amended to overcome the formal matters set forth in paragraphs 1 and 3 of the Official Action dated April 21, 2005.

Claims 1 through 31 have been rejected under 35 USC § 103(a) as allegedly being unpatentable over Hutchison et al. (i.e., U.S. Patent No. 6,728,486). This is the sole art rejection imposed by the Examiner. Accordingly, Claims 1 through 31 clearly recite a novel invention. Further, as pointed out below, Claims 1 through 31 also recite an unobvious invention, inter alia, because the Examiner has failed to establish a prima facie case of obviousness. Rather, the Examiner's rejection is based on impermissible hindsight reconstruction and, thus, must be withdrawn for at least the reasons set forth below.

"Determination of obviousness under 35 U.S.C. § 103 is a legal conclusion based on underlying facts." *In re Kumar*, 2005 U.S. App. LEXIS 17215,*8 (Fed. Cir. 2005).

"During examination, *the examiner bears the initial burden of establishing a prima facie case of obviousness...* The prima facie case is a procedural tool, and requires the examiner *to initially produce evidence to support a ruling of obviousness. Id.* (emphasis added)

There must be a suggestion or motivation in the prior art to modify a reference to satisfy the claimed invention. In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

“The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.”

Id. (emphasis added)

It is impermissible to use the inventor’s own work to find the necessary motivation or suggestion to modify a reference to satisfy the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 USPQ 303, 312-313 (Fed. Cir. 1983)(‘To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of hindsight syndrome wherein that which only the inventor taught is used against the teacher.’)

When analyzed under the foregoing legal standards, the rejection of Claims 1 through 31 based on Hutchison et al. cannot be sustained.

Applicants’ invention as recited in Claim 1 is directed to a node comprising a series connection of elements E_i , $i=1,2, \dots N$, where N is greater than 1, forming a first optical path, where each of said elements E_i injects an optical signal of band ω_i , and where ω_i is disjoint from ω_j for all $i \neq j$. The node also includes a series connection of elements F_i , $i=1,2, \dots N$, forming a second optical path, where each of said elements F_i extracts an optical signal of band ω_i . A plurality of transmitters T_i , $i=1,2, \dots N$, are coupled to said elements E_i *on a one to one basis*. Further, a plurality of a receivers R_i , $i=1,2, \dots N$, are coupled to said elements F_i *on a one to one basis*.

The Examiner concedes that Hutchison et al. does not expressly or inherently disclose a plurality of transmitters coupled to the plurality of signal injecting elements on a one to one basis. The Examiner further concedes that Hutchison et al. does not

expressly or inherently disclose a plurality of receivers coupled to the plurality of signal extracting elements on a one to one basis. However, the Examiner contends that such would be obvious. Applicants respectfully submit that any such contention is erroneous as there is no teaching, motivation or suggestion in Hutchison et al. or the art in general to modify Hutchison et al. to satisfy the claimed invention. In fact, it would be counterintuitive to the thinking of one of ordinary skill in the art to utilize *twice as many receivers and transmitters* than necessary. Rather, one of ordinary skill in the art would use a single transmitter to transmit multiple signals having different wavelengths to save on cost and reduce the complexity of the node. Hutchison et al. and the prior art in general lack any suggestion or motivation to use twice as many transmitters and twice as many receivers as is required. Figure 10 discloses one example of a preferred embodiment formed in accordance with this invention. Accordingly, Applicants respectfully submit that Claim 1 patentably defines over the prior art.

Claims 2 through 24 depend directly or indirectly from Claim 1 and, therefore, are allowable for similar reasons. Further, these claims recite additional features that patentably distinguish Applicants' invention from the prior art. Applicants respectfully submit that the Examiner has failed to provide sufficient evidence to establish a prima facie case of obviousness of any of Claims 1 through 24. Rather, the obviousness conclusion can only be impermissibly reached through the use of hindsight reconstruction and, therefore, must be withdrawn.

Applicants' invention, as set forth in Claim 25, is directed to a node comprising a first series connection of N elements, where N is greater than 1, forming a first optical path, where each of the elements in said first series injects an optical signal of a

preselected band of wavelengths, and where bands of wavelengths of the different elements in said first series are disjoint from each other. The node also includes a second series connection of N elements, forming a second optical path that is disjoint from said first optical path, where each of the elements in said second series extracts an optical signal of a preselected band of wavelengths, and where bands of wavelengths of the different elements in said second series are the same as the bands of wavelengths of the different elements in said first series. The node further includes a plurality of transmitter elements. Each one of said transmitter elements is coupled to a different one of said N elements in said first series connection of N elements. A plurality of receiver elements are provided at the node. Each one of said receiver elements is coupled to a different one of said N elements in said second series connection of N elements.

The Examiner concedes that Hutchison et al. does not expressly or inherently disclose a plurality of transmitters wherein each transmitter is coupled to a different one of the plurality of signal injecting elements. The Examiner further concedes that Hutchison et al. does not expressly or inherently disclose a plurality of receivers wherein each receiver is coupled to a different one of the plurality of signal extracting elements. However, the Examiner contends that such would be obvious. Applicants respectfully submit that any such contention is erroneous as there is no teaching or suggestion in Hutchison et al. or the art in general to modify Hutchison et al. to satisfy the claimed invention. It would be contrary to the thinking of one of ordinary skill in the art to utilize twice as many receivers and transmitters than necessary. Rather, one of ordinary skill in the art would use a single transmitter to transmit multiple signals having different wavelengths to save on cost and reduce the complexity of the node. Hutchison et al. and

the prior art in general lack any suggestion or motivation to use *twice as many transmitters and twice as many receivers as is required*. Applicants respectfully submit that the Examiner has failed to provide sufficient evidence to establish a prima facie case of obviousness of Claims 25 and, therefore request that the rejection be withdrawn.

Applicants' invention, as recited in Claim 26, is directed to an arrangement comprising a first module that includes: a) an add-in port that leads to a set of elements that add an optical signal of a first wavelength; b) an add-out port that outputs an optical signal from said set of elements that add an optical signal; c) a drop-in port that leads to a set of elements that extract an optical signal of said first wavelength, and d) a drop-out port that outputs an optical signal from said set of elements that extract an optical signal. The arrangement also includes a second module that includes: a) an add-in port that leads to a set of elements that add an optical signal of a second wavelength; b) an add-out port that outputs an optical signal from said set of elements that add an optical signal; c) a drop-in port that leads to a set of elements that extract an optical signal of said second wavelength; and, d) a drop-out port that outputs an optical signal from said set of elements that extract an optical signal. The arrangement further includes connection elements that optically connect the add-out port of said first module to the add-in port of said second module, and the drop-out port of said second module to the drop-in port of said first module.

The Examiner concedes that Hutchison et al. fails to disclose numerous aspects of Claim 26 including but not limited to the connection of the add-output port of the first module to the add-in port of the second module and the drop-out port of the second module to the drop-in port of said first module. However, the Examiner has failed to

provide sufficient evidence establishing the necessary suggestion or motivation to modify Hutchison et al. to satisfy Applicant's invention as recited in Claim 26. Specifically, there is no teaching, suggestion or motivation in Hutchison et al. or the prior art generally to modify Hutchison et al. to have two modules 230 connected in a directly adjacent manner recited in Claim 26. Accordingly, Applicants respectfully request that the rejection of Claim 26 be withdrawn as the necessary predicate for an obviousness rejection is lacking.

Claims 27 and 28 depend directly or indirectly from Claim 26 and, therefore, are allowable for similar reasons. Further, these claims recite additional features that patentably distinguish Applicants' invention from the prior art. Each of these claims recited third and fourth modules and detail the manner of connection of the these modules. None of these features are taught or suggested by Hutchison et al. Hence, Applicants respectfully submit that the Examiner has failed to provide sufficient evidence to establish a prima facie case of obviousness of either of Claims 27 or 28. The rejection of these claims should be withdrawn.

Claim 29 is directed to a node that includes a first sub-node and a second sub-node. Each of said first and second sub-nodes require a plurality of transmitters coupled on a one to one basis to a plurality of signal injecting elements and a plurality of receivers coupled to a plurality of signal extracting elements on a one to one basis. As previously explained, Hutchinson et al. and the prior art in general fail to provide the necessary teaching or suggestion to modify Hutchison et al. to satisfy the claimed invention.

Applicants' invention, as recited in Claim 31, is directed to a node that also requires a one to one connection between transmitters and signal injecting elements as

well as between receivers and signal extracting elements. These limitations are clearly not taught or suggested in the prior art. Accordingly, Claim 31 patentably defines over the prior art.

New claims 32 through 35 recite the physical spatial relationship between the add ports and the drop ports. The benefits of these physical spatial relationships are discussed in the Specification in detail including but not limited to paragraph 22. The inventions recited in these new claims are not taught or suggested by the prior art of record. Claim 32 requires that no port be positioned between the add-in port and the drop-out port of the first module. The claim further requires that no port be positioned between the add-out-port and the drop-in port of the first module. Figure 10 discloses one example of a preferred embodiment formed in accordance with this invention.¹ Hutchinson et al. does not teach or suggest Applicants invention as recited in Claim 32. As seen in Figure 13 B, a number of ports are physically positioned between the add ports and the corresponding drop ports. Further, there is no teaching or suggestion for modifying Hutchinson et al. to satisfy the claimed invention.

Claims 33 through 35 depend directly or indirectly from Claim 32 and, therefore are allowable for similar reasons. Moreover, these claims recite additional limitations that patentably distinguish the claimed invention from the prior art.

Applicants respectfully submit that the subject patent application is in condition for allowance. Hence, Applicants request that the subject patent application be passed to issuance without delay.

¹ By referring to figure 10, Applicants in no way are limiting the scope of Claim 32 to a module of the forms illustrated in Figure 10. Rather, the reference merely provides one example modules covered by Claim 32.

A check in the amount of \$400.00 is attached hereto to satisfy the government fee for the additional claims. It is believed that no additional fees are due. However, should that determination be incorrect, the Commissioner is hereby authorized to charge any deficiencies to Deposit Account No. 50-0562 and notify the undersigned in due course.

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Respectfully submitted,


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